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10/718,931	11/20/2003	Kun-Seok Lee	8021-191 (SS-17862-US)	3157	
22150 7590 11/26/2007			EXAM	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD			GHEBRETINSAE, TEMESGHEN		
WOODBURY, NY 11797			ART UNIT	PAPER NUMBER -	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Examiner Temesghen Chebretinsae Zett	Office Action Summary		10/718.931	LEE, KUN-SEOK				
The MAILING DATE of this communication appears on the cover sheet with the correspondence address = Period for Reply Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions for the may be permissed used for provided under the provided of 3 CFR 1.13(e). Into event, however, may a reply be timely filled 1 to NO period for reply is specified above, the maximum statutory parties will apply as will expire SIX (6) MONTHS from the mailing date of this communication. 1 Palls to repet within the side of central deprised for reply is specified above. the maximum statutory parties will apply and will expire SIX (6) MONTHS from the mailing date of this communication. 1 Palls to repet within the side of central deprised for reply is specified above. The maximum statutory parties will apply and will expire SIX (6) MONTHS from the mailing date of this communication. 1 Palls to repet within the provided provided for specific statutes. 2 Palls to repet within the side of this communication. 2 Palls to repet the maximum statutory parties will apply and will expire statute. 2 Palls to repet the side of this communication. 3 Palls to repet the maximum statutory parties will apply and statute. 3 Palls to repet the statute and statute. 3 Palls to repet the statute and statute. 4 Palls (Side Side Side Side Side Side Side Side								
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DETAILED ACTION

- 1. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:
 - 1. Application number (checked for accuracy, including series code and serial no.).
 - 2. Group art unit number (copied from most recent Office communication).
 - 3. Filing date.
 - 4. Name of the examiner who prepared the most recent Office action.
 - 5. Title of invention.
 - 6. Confirmation number (See MPEP § 503).
- 2. The indicated allowability of claim 9 is withdrawn in view of the newly discovered reference(s) to Oh. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 4. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Oh (Us2002/0145472).
- 5. Oh discloses a sigma delta modulator comprising: a plurality of operation units for adding input values to internal feedback values and for successively accumulating the added values up to a forth order.(214,216); a quantizer for quantizing an accumulated values output from a last one of the plurality of operation units into a

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plurality of bits (220); and a plurality of multipliers for outputting feedback coefficients as internal feedback values to each of the plurality of the operation units, wherein the feedback coefficients are determined according to a quantized level corresponding to the plurality of bits(212) see fig.2 and paragraph (0041-0042).

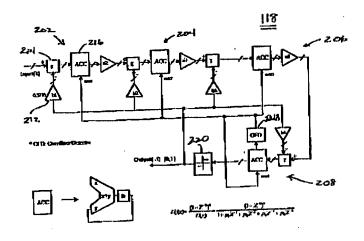


FIG. 2

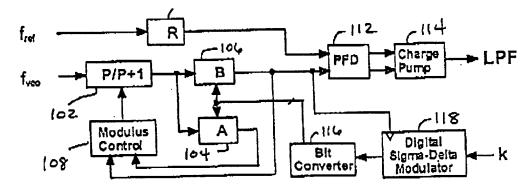
· 6.

Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 8. Claims1-2, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Doerrer (6,980,139).

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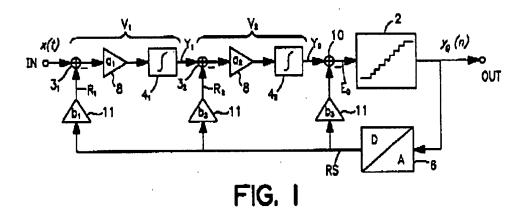
9. Oh discloses a fractional frequency synthesizer comprising: a phase detector for detecting a phase difference between a reference signal and a feedback signal (112); a voltage controlled oscillator for receiving a phase difference control signal based on the detected phase difference(fvco is output from VCO not shown); a divider for selecting a value from at least plurality integers according to a predermned selection signal, for dividing the frequency of the oscillated signal output from the voltage oscillator by the selected value, and for outputting a divided signals a feedback signal to the phase detector (102);a sigma-delta modulator (fig.2) for adding a predetermined input values to an internal feedback values(input(k) and output from 212), for successively accumulating added values (216) for quantizing an accumulated value to at least multi levels and for converting a quantized value into the predetermined selection signal (0,1).



10. Oh differs from the claimed invention in that the delta-sigma modulator includes single bit quantizer generating two levels. However, Doerrer disclose a sigma delta modulator with multi bit quantizer (3- bit quantizer) generating multi-level. Oh and Doerrer are analogues art because they are from the same field of endeavor of sigma-delta modulation. At the time of the invention it would have been obvious to one of

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ordinary skill in the art to implement the teaching of Doerrer (3-bit quantization) into Oh. The motivation/suggestion for doing so would have been to reduce the quantization noise. In communication art it is well known that multi-bit quantization reduces noise better than single- bit quantization.



11.

12. Oh (and Doerrer) also discloses a sigma delta modulator comprising: a plurality of operation units for adding input values to internal feedback values and for successively accumulating the added values up to a forth order.(214,216); a quantizer for quantizing an accumulated values output from a last one of the plurality of operation units into a plurality of bits (220); and a plurality of multipliers for outputting feedback coefficients as internal feedback values to each of the plurality of the operation units, wherein the feedback coefficients are determined according to a quantized level corresponding to the plurality of bits(212) see fig.2 and paragraph {0041-0042}. As claimed in claims 2 and 17.

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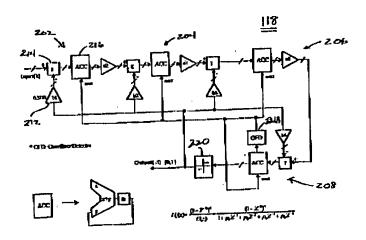


FIG. 2

Allowable Subject Matter

13. Claims 3-8, 10-15, 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to claims 1 and 16 have been considered but are most in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 571-272-3017. The examiner can normally be reached on Monday-Friday from 8 to 6. The examiner can also be reached on alternate.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammed, can be reached on 571-272-3021. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

15. T.Ghebretinsae 11/27/07 PK

Temesghen Ghebretinsae Primary Examiner Art Unit 2611

PRIMARY EXAM